

# **REPORT**

*of the*

**PORTFOLIO COMMITTEE**

*on*

**POLICE**

**STUDY TOUR TO CANADA AND THE UNITED KINGDOM**

**(24 June – 10 July 2011)**

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## **1. INTRODUCTION**

Deoxyribonucleic acid (DNA) evidence, due to its reliability, is increasingly used in criminal investigations. In line with international trends South Africa intends to create a legal framework by which the collection and analysis of DNA will be facilitated.

The Criminal Law (Forensic Procedures) Amendment Bill [B2 – 2009] which was introduced in Parliament in 2009 was aimed at *inter alia* providing a legislative framework in respect of the taking and storage of DNA samples and DNA profiles; and the establishment and regulation of the administration of a National DNA Database. The Bill was later split and the part of the Bill that dealt with DNA issues was not passed. It is anticipated that proposed DNA legislation will be dealt with by the Portfolio Committee on Police (“the Committee”) in the near future. In order to prepare for this eventuality the Committee undertook a Study Tour to Canada and the United Kingdom.

### **1.1. Date of Study Tour**

The Portfolio Committee on Police undertook a Study Tour from 24 June to 10 July 2011 to Canada and the United Kingdom in order to study the impact and implementation of DNA legislation in these two countries, as well as the forensic services, facilities, procedures and best practices in respect of DNA and national DNA databases.

### **1.2. Structure of the Report**

Section 1 of the Report contains a brief introduction on the nature and use of DNA evidence; and the objectives of a proposed legislative framework to govern a national DNA database, as well as the collection and storage of DNA.

Section 2 outlines the history and processing of the Criminal Law (Forensic Procedures) Amendment Bill [B2 – 2009] in Parliament, by the two Committees concerned, that is the Ad Hoc Committee on the Criminal Law (Forensic Procedures) Amendment Bill and the Portfolio Committee on Police.

Section 3 of the Report provides a brief history of the use of DNA in South Africa in crime fighting, a short discussion on the legislative and Constitutional framework relevant to the use of DNA, and an outline of some of the current challenges at the South African Police Services (SAPS) Forensic Science Laboratory (FSL). It also highlights some of the key issues that should be considered when dealing with this legislation.

Section 4 of the Report focuses on the observations and findings of the Committee during the Study Tour to Canada.

Section 5 highlights observations and findings with regard to the United Kingdom. These include findings for each country with regard to the individual presentations, the legislative framework, the implementation of the legislation, and challenges regarding the use of DNA.

Section 6 contains Committee recommendations in respect of proposed DNA legislation for South Africa.

Section 7 of the Report provides a conclusion.

### **1.3. Delegation**

#### **Members of Parliament**

- 1) Honourable LS Chikunga (ANC) - Portfolio Committee on Police Chairperson and leader of Delegation
- 2) Honourable G Schneemann (ANC)
- 3) Honourable A Van Wyk (ANC) (United Kingdom only)
- 4) Honourable M Molebatsi (ANC)
- 5) Honourable G Lekgetho (ANC)
- 6) Honourable D Kohler-Barnard (DA)
- 7) Honourable K Meshoe, (ACDP)
- 8) Honourable V B Ndlovu (IFP)

#### **Parliamentary Officials**

- 1) Ms Zola Vice, Committee Secretary
- 2) Ms Ayanda Boss, Committee Secretary
- 3) Ms Patricia Whittle, Committee Researcher

#### **Office of the Chief State Law Adviser Representatives**

- 1) Mr Theodore Hercules, Principal State Law Adviser
- 2) Mr Mongameli Kweta, Acting Principal State Law Adviser
- 3) Mr Sisa Makabeni, Senior State Law Adviser

#### **South African Police Services (Forensic Services Division) Representative**

- 1) Brigadier Adeline Shezi, Section Head: Quality and Environmental Management

### **1.4. Objectives of the Study Tour**

The objectives of the Study Tour were to study international best practices and learn from experiences in Canada and the United Kingdom in respect of the:

- Legislative framework, protection of Constitutional rights and the implementation of DNA legislation;
- Access to and protection of information and administration of a national DNA database and ethical issues in this regard;
- Collection and storage of DNA;
- State and private forensic laboratories performing forensic and DNA analysis;
- Different uses of DNA in the medical field and the evidential value of DNA in the criminal justice system;
- Scientific and technological developments in respect of DNA;
- Legislation and policing developments in addressing human trafficking; cybercrime and child pornography, serious and organised crime, terrorism and security arrangements in respect of the upcoming 2012 Olympic and Paralympic Games to be held in London;

- Parliamentary and Committee work and systems of the Canadian and United Kingdom Parliaments; and
- International activities and experiences in bodies like the Canada - Africa Parliamentary Association.

## **2. HISTORY OF THE CRIMINAL LAW (FORENSIC PROCEDURES) AMENDMENT BILL [B2 – 2009] IN PARLIAMENT**

### **2.1. Ad Hoc Committee on the Criminal Law (Forensic Procedures) Amendment Bill**

#### **2.1.1 Formation**

The Criminal Law (Forensic Procedures) Amendment Bill was referred to the Ad Hoc Committee on the Criminal Law (Forensic Procedures) Amendment Bill on 13 January 2009. The Ad Hoc Committee was required to report to the National Assembly by 23 January 2009. The Committee held its first meeting on 20 January 2009 and subsequently requested an extension on the reporting date.

#### **2.1.2 Oversight and Processing of the Bill**

As part of its deliberations on the Bill the Ad Hoc Committee scrutinised the performance of the Forensic Science Laboratory (FSL) of the South African Police Service and visited the SAPS Criminal Record Centre and Forensic Science Laboratory in Pretoria on 28 January 2009. The Ad Hoc Committee considered the performance of the SAPS as reflected in Parliamentary reports flowing from Parliamentary hearings on the SAPS Annual Reports and Budget Votes. The Ad Hoc Committee also considered comparative research and public submissions on the Bill.

#### **2.1.3 Findings**

The process of the public hearings was limited due to the time constraints faced by the Ad Hoc Committee. There was a need for the public to be well-informed about the contents and implications of this Bill as it was intended to be an integral part of the criminal justice system. Therefore the Ad Hoc Committee was of the view that the public should be afforded more time to participate in the process through public hearings.

The Ad Hoc Committee found that the Bill was important in the fight against crime in South Africa and that it was a crucial element in the revamping of the criminal justice system. The Ad Hoc Committee could not finalise the Bill due to time constraints.

The research findings provided to the Ad Hoc Committee (as well as that contained in some of the public submissions) in relation to the Bill revealed a number of important issues that needed thorough consideration. The use of DNA sampling has raised serious legal challenges in countries where this technology is fully operational. For example, many of the submissions that were made to the Ad Hoc Committee raised serious Constitutional questions, in particular relating to the right to privacy. A further serious legal concern related to the powers of police officers to be able to take such bodily samples without first having to obtain a warrant from a court. Other concerns related to the use of DNA sampling and the retention of samples and profiles in a DNA database,

even if a person was not convicted by a court, which could be regarded as a violation of civil liberties and rights. During the deliberations officials from the Departments of Safety and Security; and Justice and Constitutional Development responded to some of these concerns. The Ad Hoc Committee made proposals in order to address these concerns but could not take a final decision in this regard.

The view of the Ad Hoc Committee was that South Africa must learn from these international experiences so that the possibility of legal challenges would be avoided. However, more information was needed before the Ad Hoc Committee could proceed with such legislation.

Other issues that needed to be considered involved the management and control of DNA services and the actual database itself. In some countries such an exercise was outsourced to private laboratories, while in other countries it remained a state-owned function. Furthermore, some countries outsourced this function to agencies outside of their police departments while others, like South Africa, retained it within the police. All these aspects had their own advantages and disadvantages that needed to be taken into account when deliberating on the Bill. However, the Ad Hoc Committee could not thoroughly investigate these advantages and disadvantages.

The Ad Hoc Committee's concluding remark was that, generally, little was known about DNA sampling and profiling in South Africa and therefore more time should be given to the Ad Hoc Committee in order to thoroughly attend to every aspect of the Bill, so that the legislation once passed, will not contain any unforeseen and unintended consequences.

Members of the Ad Hoc Committee raised concerns around the general implementation of the legislation and, in particular, around the capacity of the SAPS to be able to implement the legislation effectively. Parliament had the responsibility to pass legislation which was implementable. Therefore the Ad Hoc Committee had identified the need for intensive scrutiny of an Implementation Plan which must accompany a Bill.

#### **2.1.4 Recommendations**

The importance of the Bill in the fight against crime could not be overemphasised. The Ad Hoc Committee was totally committed to the fight against crime and viewed it as a priority. It recommended that the Fourth Parliament consider the Bill as a matter of urgency. The Ad Hoc Committee also expressed the view that South Africa must learn from international experiences to avoid the possibility of legal challenges and that more information was needed in this regard before Parliament could proceed with such legislation.

### **2.2. Portfolio Committee on Police**

#### **2.2.1 Processing of the Bill**

With the establishment of the Fourth Parliament, the Bill was revived by a Resolution of the National Assembly on 7 July 2009, and was referred to the Portfolio Committee on Police on 2 September 2009.

The Portfolio Committee on Police began the process again, aided by the research and prior information that had been gathered and considered during the process of the Ad Hoc Committee.

The Portfolio Committee received a briefing by the SAPS on the Bill and on the Implementation Plan. The Committee Members were of the view that the Implementation Plan that was presented was not sufficiently detailed. It did not describe sufficiently the phases for the implementation and the costs of each phase. The briefing did not provide the Committee with a full picture of how the Bill would be implemented once passed and the costs and other implications of the implementation process.

The Portfolio Committee took a decision to split the Bill and process it in two parts due to the lack of a thorough Implementation Plan. After taking the decision to split the Bill, the Committee then dealt only with the issues relating to fingerprints, body prints and photographic images.

The Portfolio Committee adopted the report on the first phase of the Bill on 23 March 2011 and the Committee Report on the Criminal Law (Forensic Procedures) Amendment Bill [B2 – 2009] was published in the Parliamentary papers on 13 April 2010. The Bill was passed by the National Assembly on 2 June 2010; and by the National Council of Provinces on 31 August 2010. The Bill was enacted when the Criminal Law (Forensic Procedures) Amendment Act No. 6 of 2010 was assented to on 11 October 2010.

### **2.2.2 Oversight process**

The Portfolio Committee on Police visited the South African Police Service's Forensic Science Laboratory (FSL) in Pretoria on 25 January 2010.

The following are some of the concerns raised by Members during the visit to the Forensic Science Laboratory in Pretoria:

- Capacity constraints particularly of personnel;
- Unused and under-utilised equipment;
- Problems with the procedures for the taking and safekeeping of blood samples;
- Insufficient safeguards to protect the integrity of samples;
- Mismanagement at the Pretoria Forensic Science Laboratory including the abuse of the tender process (corruption).

These and other concerns motivated the Committee to redraft the Bill. A clear and detailed Implementation Plan should thus accompany the Bill.

The Portfolio Committee on Police scrutinised the performance of the Forensic Science Laboratory during its hearings on the performance of the SAPS during 2009/10, as contained in the 2009/10 Annual Report of the SAPS, as well as in its hearings on the Budget Votes of the SAPS for 2010/11 and 2011/12.

### **2.2.3. Recommendations**

In order to deal with the second phase of the Bill that deals with DNA samples and profiles, the Committee took a decision to embark on a Study Tour to Canada and the United Kingdom.

The main factors / criteria used to select Canada and the United Kingdom were:

- A Constitution and Bill of Rights or laws that protect human rights;
- Established DNA databases;
- Legislation governing DNA profiling and DNA databases;
- The size of the DNA databases;
- The number of years that the databases had been in existence and the legislation had been in effect; and
- The types of reference categories on the databases.

## **3. HISTORY OF THE USE OF DNA IN SOUTH AFRICA**

### **3.1. In crime fighting**

Forensic DNA analysis was introduced in South Africa in 1991. It was performed mainly in criminal and paternity casework due to the technology requiring fairly large DNA stains at that time.

In 1993, the South African Police Service's Forensic Science Laboratory (FSL) introduced the "*Amplitype HLA DQA1 PCR amplification and typing Kit*", which was accepted internationally as the first forensically validated Polymerase Chain Reaction (PCR) Kit. This was used in processing various crime samples as results could be obtained on much smaller stains. During 1995, the Profiler Kit technology was replaced with the improved "*Amplitype PM/PM+HLA DQA1 PCR amplification and typing Kit*".

In January 1998, the existing DNA technology was replaced with the improved Short Tandem Repeat (STR) - PCR technology with a much higher discrimination power as the Profiler Kit. In mid-2001 the much improved Profiler Plus Kit replaced this Profiler Kit.

Forensic DNA analysis was predominantly used as a prosecutorial tool on a case-by-case basis in the last fifteen years, and it was mostly performed on casework, which was specifically requested by the State Prosecutor. This was mainly in contact crimes.

DNA profiles generated from case work samples were stored in the DNA case work Repository. Before 2008, comparative searches on the forensic DNA profiles saved in this DNA Repository was performed on an *ad hoc* basis and was given a low priority. It is with the latest developments that the full potential to use forensic DNA as an investigative tool to link different offences and persons has been realised. To this end, a legislative framework to perform forensic DNA comparative searches was given new impetus.

Presently forensic DNA analysis is performed in the Pretoria and Cape Town facilities. Forensic DNA analysis is planned to be expanded to the FSL facilities in Port Elizabeth (Eastern Cape) and Amanzimtoti (KwaZulu-Natal) in the 2011/12 financial year.

### **3.2. Legislative framework**

Currently there is no legislation in South Africa which specifically provides for the establishment and administration of a National DNA Database as a crime intelligence tool. There is therefore a need to introduce legislation for this purpose.

Section 37 of the Criminal Procedure Act No. 51 of 1977 as amended by Chapter 3 of the Criminal Law (Forensic Procedures) Amendment Act No. 6 of 2010 is currently the empowering provision which determines from whom DNA samples may be taken. In this regard it is important to note that blood samples can be taken from arrested and convicted persons.

This section of the Criminal Procedure Act provides the legislative authority for the police to take the necessary steps to ascertain whether the body of an accused person has "any mark, characteristic or distinguishing feature or shows any condition or appearance". Section 37(1)(c) and (2)(a) provides that a blood sample for the ascertainment of the bodily features of an accused cannot be taken by a police officer, but must be taken by either a medical officer of any prison or any district surgeon, any registered medical practitioner or registered nurse. Blood samples are taken at the request of the police official, or in the case where a police official is not empowered under section 37(1) to request such sample, by order of the court.

Other legislation, such as section 113(2) of the Firearms Control Act No. 60 of 2000; and section 9(3) of the Explosives Act No. 15 of 2003, provides that bodily samples to be taken from the body of a person may only be taken by a registered medical practitioner or a registered nurse.

### **3.3. Challenges and current developments at the SAPS Forensic Science Laboratory**

The introduction and implementation of proposed DNA legislation is part of the process aimed at improving the Criminal Justice System (CJS) with regard to the use of forensic analysis in the investigation of crime. Proposed DNA legislation should ideally address the collection and the analysis of crime-scenes samples, as well as the effective administration of the national DNA Database.

The following should also be taken into account:

- (i) *The training of Police Officials in the Client Service Centres to take non-intimate samples is not foreseen to be a challenge and is manageable.*

The training of all police officers in forensic DNA processing and the value of such evidence in solving crime will go a long way in the successful implementation of the DNA legislation. According to the Section Head: Quality and Environmental Management of the FSL, the training of police officers has started in anticipation of the passing and implementation of proposed DNA legislation. The training of Crime Scene Examiners is being rolled out, and discussions around the introduction of forensic evidence handling at the Basic Training level have resumed.

In the United Kingdom there is a strong link between the police station where trainee police officers are placed and the police training college as the police station is required to report to the college on the type of practical training and experience the police officer has been exposed to as identified in his or her training needs. South Africa could benefit from this approach to ensure that the training needs of police officers are prioritised when they are assigned to police stations.

*(ii) The mandatory retrospective taking of DNA samples of previously convicted persons*

Although the FSL has reduced the DNA case work backlogs, the current capacity may not enable the retrospective taking of DNA samples, even if it were meant for convicted criminals alone. It is however important to note that there are decentralisation initiatives that already commenced in order to capacitate the Eastern Cape and KwaZulu-Natal Forensic Laboratories with the resources needed for DNA profiling. Until these projects are realised, the retrospective taking of samples will remain a challenge once such legislation is implemented. Additional posts have been advertised to recruit more forensic analysts to address this need, and other DNA capacitation programmes are currently underway – with the new technologies, for e.g. the Crime Index programme CI-Lane, towards finalisation of the validation exercises before implementation.

The co-operation between various state departments for example the Departments of Correctional Services, Health and the SAPS has not been defined or established as yet as far as the taking of retrospective samples from convicted criminals and remand detainees are concerned.

*(ii) The storage and destruction of the DNA samples*

Currently, the FSL retains the portion of all the samples that were taken from alleged offenders and/or victims. These samples are stored as per the applicable Quality Management System. The destruction process for such samples will be guided by the outcomes of the deliberations of the proposed DNA legislation with regard to the circumstances under which such samples should be destroyed.

This is an anticipated labour-intensive challenge, and given the volumes of such samples, is likely to become a lengthy process, which might have an impact on the processing of DNA case work and on the turnaround time of the DNA cases.

*(iv) Expunging of DNA profiles from the National DNA Database*

It will be challenging to have the DNA profiles expunged before the Systems Solution for the National DNA Database is configured. This system should enable the receipt of automated updates or notifications that, for example, a person has been convicted, found guilty, that the case will not be prosecuted, or that the case is withdrawn from the CRIM and/or CAS systems. There is no system currently to interface all SAPS legacy systems to enable co-ordinated reporting. Such reporting is important for a national DNA database administration as delays in dealing with expungement requests may have serious legal ramifications.

(v) *Updating of Indexes on the Forensic DNA Database*

There is currently no system to automatically update Database Indexes when a person moves from a “Suspect” category to a “Convicted Offender” or “Innocent” category. This implies that a person may stay in the wrong category until the manual update is finalised. The System Solution is one of the critical needs for the Forensic DNA Database administration and management.

(vi) *Mandatory retrospective comparative searches*

Mandatory retrospective comparative searches on old forensic DNA profiles will also pose a challenge. This will create backlogs of forensic investigative leads that will be required to be verified. Comparative searches have not been done on old DNA Profiles in the current DNA repository. There is therefore a high likelihood that significant numbers of hits / leads will be generated when retrospective comparative searches are conducted, and this alone will create a lead / hit verification backlog. Retrospective comparative searches should, however, be possible on a case-by-case basis and within the resources available at any given stage.

(vii) *Forensic Awareness*

There appears to be a lack of understanding about the value of and differences between forensic DNA analysis, a forensic DNA database and other DNA databases used in the medical profession for diagnostic or medical purposes. As a result, the provisions of proposed DNA legislation must be clear in order to be understood in the context of forensic DNA as a tool in the fight against crime. In order to address this challenge, the Forensic Services Division has already embarked on awareness initiatives from within SAPS which targets the broader communities and key role players in the Criminal Justice System.

(viii) *Improving the Criminal Justice System in respect of collecting forensic exhibit material and forensic DNA analysis*

The Division: Forensic Services is currently focusing on the expansion and improvement of Crime Scene Examiners’ skills so as to improve the collection of other forensic exhibit material including “touch” DNA samples. The DNA Evidence Recovery Course for Crime Scene Examiners which was introduced during 2010 is one of the initiatives to address this.

(ix) *Increase in demand for DNA analysis*

The expansion of forensic DNA analysis of crime scene samples to commensurate with the increased submissions from crime scenes may prove to be challenging if the plans for future laboratory facilities, including the decentralisation process, is not realised as planned.

(x) *Future accommodation and forensic staffing needs*

There are currently challenges experienced with securing new SAPS-owned accommodation, or accommodation that will be suitable to implement these services in

the long term. Accommodation poses the greatest need in the realisation of the implementation programme, however there are plans in place to optimise the current facilities, and these include shift work and flexi-times. Over the Medium-Term Framework the DNA facilities that are being established in the 2011/12 financial year in Port Elizabeth and Amanzimtoti, together with the increased capacity at Plattekloof should prove to be adequate. However, the timely training of adequate numbers of forensic DNA experts downstream in the DNA examination process, i.e. DNA Reporting Officers, DNA Reviewers and DNA Profile Reviewers will be a challenge in meeting the increased demands in these laboratories.

(xi) *Forensic DNA Database governance and reporting*

The Criminal Procedure Act provides a broad legal framework to perform DNA analysis by permitting that distinguishing characteristics of the person arrested may be determined from his or her blood or bodily sample.

The Standard Operating Procedures and Policies in the Quality Management System of the FSL provide the operational governance / framework to perform forensic comparative searches. A precautionary conservative approach was adopted without a clear legislative framework in place regarding which profiles may be used for reporting comparative searches. The Policy only permits reporting of forensic investigative DNA leads or hits in cases where the suspect was previously included as a possible perpetrator, linking him or her through the DNA match in the original case in which he or she was arrested. Thus a person who has been excluded as a suspect through his or her forensic DNA profiles is not considered as a reportable forensic investigative lead. The linking of different cases through the forensic DNA profiles is however, reported.

### **3.4. Additional key issues for consideration**

The following are additional key issues for consideration with regard to the proposed legislation:

- Which institution will be best suited to take custody of DNA samples and administer a national DNA database;
- The positioning of the DNA custodial facility;
- From whom, under which circumstances, and by whom the forensic non-intimate DNA (buccal) samples may be taken;
- Training of police officers;
- Time-periods for the keeping of DNA samples and profiles;
- Protection of privacy and other Constitutional rights;
- Secure storage of DNA profiles and samples;
- Securing of crime scenes;
- Preventing contamination of samples;
- The type of offences for which DNA will be collected;
- The type of DNA samples to be collected;
- The differentiation between and definition of intimate and non-intimate samples; and
- Protocols for the collection and profiling of DNA information.

## **4. CANADA STUDY TOUR**

Canada follows a human-rights based approach in its implementation of DNA legislation. Because of the perceived intrusion associated with the collection and storage of DNA, legislation in this regard is aligned with the Canadian Constitution and privacy laws, the implementation of which are overseen by a Privacy Commissioner. The state has been able to balance its need to collect DNA to fight crime while also safeguarding the individual's rights from being unnecessarily infringed by legislating that DNA can only be collected on authority of a warrant issued by a judge. However, due to an increase in especially youth crime, there has been a shift more towards crime fighting in that the Criminal Code has been amended to expand the list of designated crimes in respect of which DNA samples can be taken and DNA profiles retained.

### **4.1 GENERAL MEETINGS AND SITE VISITS**

#### **4.1.1 Meeting with Mr Johan Nel and Ms T Niemi from the Office of the South African High Commissioner in Canada on 26 June 2011**

Mr Johan Nel briefed the Delegation on its programme for the week and on general issues of protocol. He also provided a brief overview of among other things, the Canadian government, Parliament, the country's political history, the current political situation in Canada, and current events in the media.

#### **4.1.2 Royal Canadian Mounted Police (RCMP) Sunset Ceremonies, 26 June 2011**

The RCMP Commissioner hosted the Delegation as VIP guests at the 2011 RCMP Sunset Ceremonies, an annual event with the 2011 theme, "Celebrating Milestones in the Policing Community". The leader of the Delegation, Honourable Chikunga, was the guest of honour at the function and was accompanied by the RCMP Commissioner and his wife on an open horse-drawn carriage to special seating reserved for them. Featured items included the Musical Ride, Equestrian Abilities Show, Mounted Arms Display, RCMP/Ottawa Police Service Pipes and Drums; and the Detector Dog Service team from the Canada Border Services Agency.

#### **4.1.3 Courtesy meeting with Deputy RCMP Commissioner Paulsen, 27 June 2011**

The Deputy Commissioner raised general issues affecting the police and the use of DNA as an investigative tool, privacy rights and general staffing and retention challenges. Extensive police training and adequate funding was very important. Risks associated with taking and storing DNA samples included the quality of samples and guarding against the contamination of samples. Another risk area was to guard against police investigators abandoning traditional investigative skills in favour of technology. It was important for the police and the forensic laboratories to be able to defend conditions under which access is granted to information on the national database. It was also important to balance the rights of individuals (suspects) with that of the victim. The Canadian police worked very closely with victims and strived to be more professional and adhere to the 1982 Charter of Rights and Freedoms. Victims, however, perceived the implementation of the Charter to be more in favour of the accused.

**4.1.4 Meeting with Superintendent Shirley Cuillierrier (Director, Immigration and Passport Branch) and Sergeant Marie-Claude Arsenault (Interim National Human Trafficking Coordinator), 28 June 2011**

Human trafficking, also referred to as “modern day slavery”, is a global phenomenon. It is a multi-billion dollar business; and victims are forced to work in enforced labour or in the sex trade. Despite Canada’s legislation which deals with human trafficking, the number of convictions remains low. A Human Trafficking National Co-ordination Centre was established to operate as a focal point for law enforcement in Canada, and to develop tools, protocol, guidelines and national awareness. To gather intelligence around human trafficking, the police work in partnership with other stakeholders, including civil society organisations. Similar to South Africa, human trafficking in Canada was trans-national and also domestic. Canada was a destination country for the trafficking of Eastern European and Asian women. The Canadian immigration programme is one of five programmes under the Board of Integrity Programme for the RCMP and the Canadian Police which deal with human trafficking. The RCMP is also a member of the Interpol Task Force on Human Trafficking.

**4.1.5 Courtesy meeting with Senator Don Meredith (Member of the Senate Committee on Legal and Constitutional Affairs); and Members of the Canada - Africa Parliamentary Association: Senator Mitchell (Chair), Senator Bélanger (Co-Chair) and Senator Michaud (Secretary)), 29 June 2011**

Senator Meredith spoke about the work of the Senate Committee on Legal and Constitutional Affairs, especially in respect of the review of DNA legislation. He also had a special interest in the youth and often spoke out against youth violence. He served on various public bodies and worked with various police departments. He drew similarities between the challenges in South Africa and Canada regarding youth and crime, especially the collection of evidence, prosecution and ensuring a fair trial.

The Canada - Africa Parliamentary Association was established in 2003 and consists of Senators and Members of the House of Commons from all political parties. Its purpose is to encourage exchanges between African and Canadian parliamentarians, to enhance Canadian parliamentarians’ understanding of important issues and serious challenges facing the African continent, to propose initiatives to increase the understanding of bilateral and multilateral issues, and to foster co-operation in all areas of undertaking.

**4.1.6 Meeting with Mike Villeneuve, Ottawa Police Service High Tech Crime Unit, 29 June 2011**

The Ottawa High Tech Crime Unit focuses on combating child exploitation. The Canadian definition of child pornography includes child pornographic stories, picture books or art and any portrayal of a child, which meant that it did not need to refer to an actual person to be an offence. The National Centre for Missing and Exploited Children (NCMEC) searches databases for child-loadable hashes

which show when child pornography is downloaded or viewed online.<sup>1</sup> The addresses or locations of suspects are traced and a search warrant obtained, which could effectively land that persons in jail depending on the data seized. While there has been success in tracking child pornographic sites, the challenge remains to track the creators of these sites; as the “onion” type encrypted software with different layers of encryption which they use make them difficult to trace. It was, however, possible to use I-match software to trace particular victims through downloaded sites.

#### **4.1.7 Visits to the RCMP Head Quarters, RCMP Forensic Laboratory, Fingerprint Section, National DNA Database, Prosecution Services, Canadian Parliament and Ottawa Police Station**

The Delegation received briefings at the various locations mentioned above from different role players in the criminal justice system. For purposes of the Report, the details of the presenters are listed below and a summary of the respective presentations that focussed on DNA are provided below.

#### **4.1.8 Luncheon hosted by the Ms Mohau Pheko, South African High Commissioner in Canada on 30 June 2011**

The High Commissioner, Ms Pheko, hosted the Delegation on its last day in Canada to a luncheon at her official residence. Ms Pheko commended the Delegation for the manner in which it set out its objectives for the Study Tour which assisted the Office of the High Commissioner in arranging the requested meetings with the Canadian hosts. Ms Pheko also spoke generally about which South African businesses were doing well in Canada, as well as her role in international relations and in promoting South African business interests in Canada.

### **4.2. PRESENTATIONS ON DNA: KEY FINDINGS AND OBSERVATIONS**

#### **4.2.1. List of Presenters**

- Mr Peter Henschel – Assistant Commissioner, RCMP;
- Mr Jeff Modler, Technical Leader, Biology Services;
- Inspector David Oldford – Officer in Charge, Fingerprint Bureau;
- Inspector Bruce Prange – Officer in Charge, Integrated Forensic Identification Services;
- Ms Paula Clarke – Counsel, Criminal Law Policy Section;
- Ms Judy Chan – Senior Counsel, RCMP Legal Services Unit;
- Mr Jeremy DeMan - Counsel, RCMP Legal Services Unit;
- Ms Julie Mugford - Director, Research and National Coordination, Organised Crime Division, Public Safety;
- Ms Isabelle Trudel – Officer in Charge, National DNA Databank;

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<sup>1</sup> “Hash” is another word for encrypted code. Encryption is the coding or scrambling of information so that it can only be decoded and read by someone who has the correct decoding key. Encryption is used in secure internet web sites and other mediums of data transfer like e-mails. A third party that intercepts information sent via an encrypted connection would not be able to read it. “Child-loadable hash” refers to encrypted code containing child pornographic material. Definitions obtained from Techterms website. <http://www.techterms.com>. Accessed 9 September 2011.

- Dr Ron Fourney - Director, Research and Development, National Services and Research;
- Christa Reccord, Laura Pitcairn and Robert Wadden (Assistant Crown Attorney) - Public Prosecution Services of Canada;
- Mr D Valiquet - Analyst, Parliament of Canada Library;
- Ms Shaila Anwar – Committee Clerk, Standing Senate Committee on Legal and Constitutional Affairs, Parliament of Canada;
- Staff Sergeant Kevin Maloney - Ottawa Police Service
- Chantal Bernier - Assistant Privacy Commissioner; and
- Chris Prince - Policy Analyst, Office of the Privacy Commissioner.

#### **4.2.2 National DNA Database of Canada: Isabelle Trudel, 27 June 2011**

The mandate of Canada's National DNA Database is to help identify suspects, link suspects to crime scenes where there is no suspect and determine whether a serial offender might be involved in a crime. It comprises a Convicted Offenders Index (COI) containing DNA profiles of offenders convicted of designated offences; and a Crime Scene Index (CSI) containing DNA profiles derived from crime scene evidence. DNA matches are mostly in respect of break and enter crimes. Through Interpol, the Royal Canadian Mounted Police (RCMP) has access to 188 international DNA databases. Canada has embarked on the retroactive collection of biological DNA samples from certain offenders. Biological samples are destroyed and associated DNA profiles are removed (expunged) from the COI when a conviction is quashed on appeal, when a DNA order is quashed, or when the period for the retention of certain samples expires, for instance three years after pardon; one year after unconditional discharge; three years after conditional discharge; and three years after parole. When a minor reaches the age of majority the results of the DNA analysis in respect of that minor must be destroyed. The costs of destroying or removing profiles from the database are much higher compared to loading profiles onto the database. Three private laboratories (accredited by the national state laboratory) perform forensic analysis of crime scene samples and also upload profiles onto the National DNA Database.

#### **4.2.3 Alternative Service Delivery Challenges: Ron Fourney, 27 June 2011**

Private laboratories are accredited and usually specialise in areas in which the RCMP does not specialise. The earliest time in which state forensic laboratories can perform the analysis of a DNA sample is six days. Private laboratories have faster turn-around times and are mostly used in instances where the police require urgent samples to be finalised in less than six days. Police clients request private laboratory assistance at their own cost. Since 2009 crime scene profiles analysed by accredited private laboratories can be uploaded onto the National DNA Database provided the requirements of the Technical Audit (in respect of their validation documentation, Standard Operating Procedures, manuals and procedures) have been met, and the systems used by these laboratories have the same core STR (Short Tandem Repeat) *loci* as the CODIS (Combined DNA Index System) database; and provided that a public laboratory with access to CODIS has reviewed the profiles to be uploaded. Reviews are needed of the technical audit of private laboratories to ensure that the standards and competencies match those of public forensic laboratories. The feasibility of privatising the RCMP as an alternative service delivery model was currently being investigated.

#### **4.2.4 Canada's DNA legislation: Paula Clarke, 27 June 2011**

DNA in Canada is governed by the Criminal Code (amended in 1995 to create a DNA warrant scheme), and the DNA Identification Act of 1998 which authorised the establishment of a national DNA databank and indefinite retention of an adult offender's DNA profile in the national DNA databank. DNA evidence was used for the first time in Canada in 1987 to help solve a criminal case; and was first accepted in Canadian courts in 1989. DNA is currently only collected in respect of 32 designated offences. A DNA order is compulsory in respect of the 16 primary offences involving "grave violence", including murder, kidnapping and aggravated sexual assault. DNA legislation allows for the retroactive taking of DNA samples from convicted offenders. DNA legislation is subject to Parliamentary Review every five years. Parliamentary recommendations made in 2010 include the creation of a Missing Persons Index through future legislative amendments.

#### **4.2.5 Forensic Service Delivery in Canada: Julie Mugford, 27 June 2011**

There are three public forensic laboratories providing forensic services in Canada. The role of Public Safety Canada in forensic service delivery includes negotiating Biology Casework Analysis Agreements with provinces and territories; establishing a Contribution Program to help fund the Ontario and Quebec provincial forensic laboratories; developing policies to ensure the long-term sustainability of forensic services in Canada; and responding to Parliamentary reviews of DNA legislation. With the exception of Ontario and Quebec, the RCMP provides forensic services for police forces across Canada. The Northumbria University Centre of Forensic Science is currently undertaking a study into the potential privatisation of the RCMP Forensic Laboratory Services. Preliminary results of the study are expected by the end of 2011.

#### **4.2.6 Legal Challenges and Judicial Response to Canada's Database System: Jeremy DeMan (Legal Counsel, RCMP Legal Services), 27 June 2011**

The constitutionality of the *ex parte* nature of the proceedings in obtaining a DNA warrant has been challenged on the basis that taking DNA violates privacy due to the information found in DNA; that DNA warrants should be a last resort; and that taking DNA violates principles against self-incrimination. The courts held however, that violation of bodily integrity was relatively modest where a DNA warrant was present and that taking DNA samples was not physically intrusive. DNA evidence is valuable to successfully identify and prosecute dangerous criminals and exonerate those wrongfully accused or convicted. A DNA order is a consequence of conviction, not a penalty for the crime. The unlawful use of DNA samples is an offence under the Criminal Code with penalties of imprisonment or fines. The state's interest in obtaining DNA is significant as effective law enforcement benefits society as a whole. Having warrants authorised by a judge ensures that the interests of individuals and the state are balanced.

#### **4.2.7 Integrated Forensic Identification Services (IFIS): Bruce Prange, 28 June 2011**

The RCMP's Integrated Forensic Identification Services (IFIS) provide direct operational specialised services to front-line police, including crime scene forensic examinations; identification and collection of exhibits for scientific analysis; bloodstain pattern analysis; disaster victim identification; and forensic imaging. IFIS also oversees the policy on

forensic identification processes, tools, technology and training. Police training includes a course on the forensic significance of evidence, an apprentice period and two-year understudy programme with a specialist. Refresher forensics training is given every two years to keep abreast of technological changes. The IFIS also employs civilians with university degrees in Science. Police members can be trained as Crime Scene Experts after three years of service. To qualify as a Fingerprint Expert, a candidate must obtain 100% in the final examinations.

#### **4.2.8 Public Prosecution Services of Canada: Christa Reccord, Laura Pitcairn and Robert Wadden (Assistant Crown Attorney), 28 June 2011**

Provincial Crown Courts prosecute most Criminal Code offences requiring DNA evidence. DNA samples are taken at court in a DNA room manned by a designated police official. A person who fails to provide a DNA sample in terms of a DNA warrant can be charged with contempt of court. DNA orders are mandatory in respect of primary offences and discretionary in respect of secondary offences. The Clerk of the Court prepares DNA orders. Errors on the DNA order form will result in the forms being rejected by the forensics laboratories or the National DNA Database. However, rejection is seldom for scientific reasons in respect of the DNA evidence itself. DNA information held by prosecutors is regarded as secure and poses no risks to the security of the National DNA Database.

#### **4.2.9 Comparison between South African DNA Bill and Canadian DNA legislation: D Valiquet (Analyst, Canadian Parliament Library), 29 June 2011**

The Canadian National DNA Database has no Reference, Contractor, Supplier or Missing Persons Index. The final report in 2010 on the Senate's Review of DNA legislation recommended that a Missing Persons Index be created. Speculative searches can be performed in Canada for the purpose of investigating crime only; and information on the National DNA Database can only be shared with foreign law enforcement agencies in the case of an exact match – partial matches are not allowed. Canadian law makes no distinction between intimate and non-intimate samples. DNA samples include buccal swabs and blood and hair samples; and are only taken from convicted offenders and only in respect of designated offences. Canadian law does not permit the taking of DNA samples from persons on probation. In Canada "reasonable grounds to suspect" denotes a lower standard for taking DNA samples than "reasonable grounds to believe".

#### **4.2.10 DNA from the crime scene to the Databank: Staff Sergeant Kevin Maloney (Ottawa Police Service), 29 June 2011**

The presentation outlined the steps from the time of collection of exhibits from the crime scene to the time that a DNA profile is entered onto the National DNA Database. The various role players involved in this process were also outlined. The training for the Forensic Identification Officer includes training on collecting biological DNA samples, preservation of evidence and professional presentation in court. A Scene of Crime Officer must have basic photography and crime scene examination skills. The Investigation and Surveillance teams submit samples to secure exhibit drop-off lockers. The DNA profiles of known suspects and the crime scene exhibits including blood, semen, food and drink, are sent to forensic laboratories for analysis and searched against profiles on the National DNA Database. Crime scene samples in respect of

serious crimes are retained indefinitely, while crime scene samples in respect of secondary assaults are kept for 25 years; and those in respect of break and enter are kept for five years.

#### **4.2.11 Balancing Security and Privacy in Canada: Chantal Bernier (Assistant Privacy Commissioner) and Chris Prince (Policy Analyst, Office of the Privacy Commissioner), 30 June 2011**

The Office of the Privacy Commissioner of Canada has oversight over Canada's privacy legislation, namely the Privacy Act and the Personal Information and Protection of Electronic Documents Act. The Office's key priority concerns genetic privacy. Members of the Office of the Privacy Commissioner include retired members of the RCMP, Supreme Court judges, and forensics, ethics and genetics experts. The Office of the Privacy Commissioner provides advice on how the RCMP's administering of the National DNA Database can be balanced with public interest. The Privacy Commissioner controls and limits the disclosure of information on the National DNA Database, as well as the use, collection and retention of DNA on the databank. No familial searches or use of the National DNA Database for a purpose other than the investigation of a crime is allowed. Confirmation of DNA profile matches is discretionary; and the Privacy Commissioner can only confirm that DNA is not already contained on the database. No legislative provision is made for the Privacy Commissioner to disclose information to foreign law enforcement agencies.

### **4.3. LEGISLATIVE FRAMEWORK**

**4.3.1 Use of DNA evidence:** In the 1980's Canada had no legislation authorising the seizure of an accused's bodily samples, whether with or without consent. DNA evidence was used for the first time in Canada in 1987 to help solve a criminal case; and was first accepted in Canadian courts in 1989. Both the prosecution service and law enforcement agencies recognised the evidential value of DNA technology in exonerating crime suspects and providing evidence of guilt.

**4.3.2 Privacy Rights:** The Charter of Rights and Freedoms (the Charter) in the Canadian Constitution provides for privacy rights. Section 7 of the Charter provides for the right to life, liberty and security of the person and section 8 provides for protection against unreasonable search and seizure. DNA legislation therefore has to be consistent with the Charter as taking DNA samples entails the limitation of these rights.

**4.3.3 Intimate and non-intimate samples:** Canadian law does not differentiate between an intimate sample and a non-intimate sample. Samples that are taken by designated police officers include a buccal swab, finger or blood prick or hair root sample.

**4.3.4 Consent:** The taking of DNA samples was challenged in court on the grounds that it infringed section 7 and 8 of the Charter. In *R v Borden*, [1994] 3 S.C.R. 145, the Supreme Court of Canada held that evidence of bodily samples taken without the consent of the accused or judicial authorisation was inadmissible.

**4.3.5 DNA warrant scheme:** *Bill C-104* was subsequently enacted in response to the Borden case and similar judgments. The Bill introduced a DNA warrant scheme in terms

of which the state can bring an *ex parte* application to court to authorise the execution of a DNA warrant in terms of which a person must provide a DNA sample.

**4.3.6 Minors and designated offences:** The Bill also amended the *Criminal Code* and the *Young Offenders Act*<sup>2</sup>, 1984 to permit the courts to authorise the taking of DNA samples from adults and minors suspected of committing designated offences. *Bill C-104* allowed DNA to be taken by a peace officer from a suspect if the court was satisfied there were reasonable grounds to believe that a designated offence has been committed and that the DNA sample found on the crime scene could, for instance, provide evidence linking the suspect to the offence.

**4.3.7 List of designated offences:** After extensive public consultations *Bill C - 3* was introduced in Parliament. *Bill C - 3* introduced the *DNA Identification Act, 1998* and also made amendments to the *Criminal Code* to create a list of designated offences in respect of which a court could make an order for a DNA warrant to be executed.

**4.3.8 Establishment of a national DNA databank:** The *DNA Identification Act* established the national DNA databank (databank) to govern the storage, collection and destruction of DNA samples and DNA profiles held in the databank. It also provides for the retroactive or retrospective taking of DNA samples from persons convicted of designated crimes (i.e. serious offences such as murder and sexual offences) committed before the *DNA Identification Act* came into operation. The DNA profile created from such a sample is stored in the Convicted Offenders Index.

**4.3.9 Primary designated offences:** The *Criminal Code* now provides for a list of primary designated offences (i.e. serious offences such as murder and sexual assaults), and secondary designated offences (i.e. offences which are not as serious). The *DNA Identification Act* provides that the court *must* make an order for the taking of a DNA sample from a person convicted of a primary designated offence. A DNA warrant can be challenged on the grounds that the infringement of an individual's right to privacy and security by the granting of the order is grossly disproportionate to the public interest.

**4.3.10 Secondary designated offences:** In the case of secondary designated offences the court *may* grant a DNA order if it is convinced that it is in the interest of justice to grant such an order, taking into account the nature and circumstances of the offence and the criminal record of the convicted person. The courts thus have discretion in this regard.

**4.3.11 Mandatory primary designated offences:** The Canadian Justice Department has over the years amended the *Criminal Code* and expanded and added new offences under the list of primary and secondary designated offences. A new list of primary designated offences called mandatory primary offences were introduced by *Bill C-13* and *Bill C-18* which obliges the court to make an order for DNA samples to be taken from persons convicted of mandatory primary offences. There are also plans to shift some secondary designated offences to primary designated offences in the future.

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<sup>2</sup> The Young Offenders Act was later repealed and replaced by the Youth Criminal Justice Act, 2003.

## 4.4. IMPLEMENTATION OF LEGISLATION

**4.4.1 Privacy Commissioner:** In Canada the *Office of the Privacy Commissioner* is an independent office which plays an important role in respect of oversight of the implementation of DNA legislation and the receipt and investigation of complaints in respect thereof. It oversees the implementation of the Protection of Privacy Act, and the Personal Information and Protection of Electronic Documents Act, and advises Parliament on legislation affecting privacy rights; and also reviews the handling of personal information by the state.

**4.4.2 DNA Data Bank Advisory Committee:** The DNA Data Bank Advisory Committee Regulations, SOR/2000-181 established the *DNA Data Bank Advisory Committee* (the Advisory Committee) to advise the Commissioner of the Royal Canadian Mounted Police (the Commissioner) on matters regarding the establishment of the databank, operation of the databank and DNA issues. The Advisory Committee consists of a Chairperson, a Vice-Chairperson, a representative of the Office of the Privacy Commissioner, and up to six other members which may include representatives of the police, legal, scientific and academic communities.

**4.4.3 Collection of DNA samples:** The Criminal Code prescribes the use of forensic DNA as an investigating tool. It allows for the collection of a reference sample from the individual who is suspected of having committed a crime, solely for the purposes of comparing the crime sample to the reference sample, and not for loading onto the National DNA Databank.

Three types of non-intimate samples can be collected from the suspects for this purpose:

- Blood sample by finger prick – blood dripped onto the FTA<sup>3</sup> paper
- Buccal swabs
- Hair – with roots

**4.4.4 DNA Collection Kits:** There are three types of Evidence Collection Kits - one for each type of sample. In Canada the finger prick is the most preferred given the DNA success rate.

The non-intimate samples together with the fingerprints are taken by an authorised police officer on “reasonable grounds of belief” that the suspect has committed a crime. All police officers are trained as per their category of expertise, on processing biological crime scenes and on the evidential value of DNA material.

Once the samples are collected from crime scenes, they are handed over to the Forensic Assessment Center (FAC), where the evidential value of the exhibits or samples will be evaluated; prior to submission to the forensic laboratory. Since the implementation of this practice there has been a significant reduction in nonsensical exhibits. Routinely, a case that is submitted to the laboratory will host on average three to four exhibits. Where an alleged offender is known, his fingerprints as well as samples or exhibits collected from the crime scene are submitted to the forensic laboratory for DNA processing.

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<sup>3</sup> FTA is an acronym for fast technology for analysis of nucleic acids.

Profiler Plus and Cofiler are STR (DNA) Kits used in the DNA process. Reporting is done on 10 STR *loci* - including sex *loci*. Where applicable, Cofiler is used for additional reporting. Y-Plex and SGM are being considered for increased match reporting.

**4.4.5 Reporting of DNA analysis results:** The outcomes of the DNA analysis process are reported as either a “match” or “exclusion”; e.g. “the suspect cannot be excluded as a depositor of the material in question”. This is followed by the probability estimate of a match which is written for, e.g. “The match probability for the DNA result is 1 in 4, 3 trillion people”, meaning that it is unlikely that anyone but the suspect would have the same profile match. The outcomes are reported to the Investigating Officer who submits the results to the Crown (Prosecutor).

**4.4.6 Issuing of a discretionary warrant to obtain DNA sample:** In cases where an alleged offender refuses to give a sample for DNA comparison, what is called a “casdos” is taken by the Police. A *casdos* is a sample believed to have come from a suspect outside the scene of crime, e.g. chewing gum, item of clothing, etcetera, which is confiscated and used in criminal proceedings. Once this sample has been found to match, the judge is approached for discretion to issue a warrant to obtain a reference sample. This will then be used for comparison purposes in criminal proceedings.

**4.4.7 Storage of forensic exhibits by police:** All remaining or left over samples or exhibits are returned to the Investigating Officer, who will submit them to the designated provincial police headquarters or central archives in the province from which the request was made.

## **4.5. ISSUES AND CHALLENGES REGARDING THE USE OF DNA**

### **4.5.1. Human rights issues**

DNA legislation must be consistent with the Canadian Charter of Rights and Freedoms. In *R v Briggs (2001) 157 C.C.C. (3d) 38* (Ontario Court of Appeal) there was a challenge regarding the constitutionality of taking of DNA samples from a person. The court acknowledged that the taking of a DNA sample infringes bodily integrity and privacy rights; infringes privacy due to the information that is found in DNA; places the state’s interests above those of an individual; and infringes the principle against self-incrimination. The court contended however, that the limitation on rights created by DNA taking is justifiable for the following reasons:

- The limitation becomes relatively modest because there is a warrant issued in terms of a court order after balancing the relevant interests;
- DNA taking is not physically invasive;
- Convicted persons lose the expectation that they may keep their identities secret from the state;
- In terms of legislation DNA samples are used only for comparison of DNA profiles;
- DNA is used as an investigating tool; and the interest of the state to fight crime is for the public’s benefit.

In *R v Rodgers, 2006 SCC 15 (Supreme Court of Canada)* the challenge was the *ex parte* nature of applications for DNA warrants. The majority of the court held that *ex*

*parte* proceedings were advisable because *inter parte* proceedings could result in the suspect frustrating the warrant process and causing significant delays. The minority judgement ruled that an individual should be given an opportunity to state his or her own case and that it is not possible to destroy one's own DNA.

In *R v Borden, 1994 SCC* the court ruled that DNA evidence that has been improperly obtained must be excluded since the DNA sample was obtained without the consent of the accused. The DNA Identification Act was later enacted to provide for a warrant scheme in terms of which the court must first make an order for the taking of a DNA sample from a convicted person, before his or her DNA sample can be taken. This illustrates the importance of ensuring that the DNA process is operated within the constitutional framework.

The Canadian Prosecution Services maintain that the differentiation between designated offences which require an application for a court order before DNA taking from a convicted individual, and designated offences in terms of which a court must make an order for DNA taking is cumbersome and hinders crime combating. They are of the view that there should not be any differentiation and that the courts must have no discretion but grant court orders for DNA sample taking from all convicted persons regardless of the category of the offence.

Familial searches on the DNA database is done by comparing samples with the profiles of convicted persons on the national DNA databank which produce partial matches with someone which could possibly be a close relative of the person or suspect in a criminal matter. The use of familial searches as a tool to identify suspects is currently undecided as this method, despite the successful use thereof which helped to solve some serious crimes in especially the USA, is not foolproof. Familial searches entail partial DNA matches and it is possible for two different and unrelated persons to have similar DNA.

The 2010 Senate Report on the review of DNA legislation has recommended the addition of two new indices, namely a Missing Persons Index and an Unidentified Human Remains Index; and to immediately after their establishment, explore the feasibility of establishing a Victims Index.

The amendment of legislation which resulted in an increase in the number of DNA samples taken from convicted individuals, means that there has to be greater capacity for DNA collection and storage.

#### **4.5.2. Retention and destruction**

DNA samples and information must be removed from the databank and destroyed immediately if:

- a conviction is set aside on appeal;
- the court order for the taking of DNA samples is set aside;
- there is an acquittal;
- the retention period has expired, for instance three years after pardon; one year after unconditional discharge; three years after conditional discharge; and three years after parole.

#### **4.5.3. Youths or minors**

The provisions of the *DNA Identification Act* in respect of taking DNA samples, as well as the retention period and destruction of DNA samples and profiles of minors are aligned to the *Youth Criminal Justice Act* and the *Youth Offenders Act*. The courts have judicial discretion in respect of making orders for the taking of DNA samples on conviction, whether for a primary or secondary designated offence. In terms of the *Criminal Code* a youth against whom an order (or warrant) for the taking of a DNA sample has been granted must be informed of his or her legal rights, including the right of access to legal representation, before the sample is taken. He or she must also be informed that his or her DNA sample will be stored in the database. The natural parent or legal guardian of a youth or minor against whom there is a DNA warrant, must also be present when a sample is taken. The RCMP Commissioner must ensure the safe and secure storage of the portion of the samples required for analysis and destroy the rest.

In terms of the *DNA Identification Act*, the Commissioner is required to destroy, without delay, any bodily substance of a youth found guilty of a designated offence under the *Youth Criminal Justice Act* or the *Youth Offenders Act*, if the destruction is required in terms of these Acts. When a minor reaches the age of majority the results of the DNA analysis in respect of that minor must be destroyed.

#### **4.5.4. Privatisation**

In Canada there are three accredited private laboratories which analyse DNA samples on behalf of the police. The police must pay for forensic services rendered by private laboratories. The improvement in capacity and efficiency in DNA analysis of the police's Forensic Science and Identification Services has however caused the police to be less dependent on the services of private laboratories.

#### **4.5.5. Review of legislation**

The DNA Identification Act provides that the Act must be reviewed within five years after coming into force by any committee of the Senate or House of Commons or of both Houses of Parliament. In this respect in June 2010 the Standing Senate Committee on Legal and Constitutional Affairs produced a final report on the review of the DNA Identification Act.

During this statutory review process the relevant stakeholders such as the Advisory Committee, Department of Justice and the Privacy Commissioner were consulted.

The report of the Standing Senate Committee on Legal and Constitutional Affairs contains the following recommendations on the amendment of the DNA Identification Act:

- automatic collection of DNA from an adult convicted of a designated offence;
- collection of DNA from an adult who is still serving a sentence for a designated offence;
- collection of DNA from an adult who is convicted outside of Canada of a designated offence;
- collection of DNA from a youth found guilty of a super-primary offence;

- the courts must determine whether the impact of the collection order on the young offender's privacy and security of the person would be grossly disproportionate to the public interest in the protection of society and the proper administration of justice before issuing a DNA collection order against a youth convicted for other designated offences;
- the removal of a DNA profile only if a person is acquitted and has no other convictions;
- allow accused persons to receive information from the National DNA Database regarding DNA analyses performed; and
- only exchange information internationally pursuant to a Mutual Legal Assistance Treaty.

The Canadian government accepted the recommendations in principle but made an undertaking to consult with the relevant stakeholders in respect of the report, before taking a decision on the recommendations.

#### **4.5.6. International co-operation**

In terms of the DNA Identification Act the RCMP Commissioner may, on the request of a foreign law enforcement agency conducting an investigation, disclose a DNA profile contained in the Crime Scene Index to the law enforcement agency or foreign state. Disclosure is therefore subject to the approval of the Commissioner.

In 2002 Canada entered into an international agreement with Interpol for the exchange of DNA information with other countries.

#### **4.5.7. Governance of the National DNA Databank**

The *DNA Identification Act of 1998* empowered the Minister of Public Safety to establish the national DNA databank (databank) for criminal identification purposes and to store DNA data. The *DNA Identification Act* regulates and governs DNA identification and the taking of DNA samples. The *DNA Identification Act* has also been aligned to the *Privacy Act* and the *Personal Information and Protection of Electronic Documents Act*.

In terms of the *DNA Identification Act* the databank is administered by and under the control of the Commissioner of the Royal Canadian Mounted Police (the Commissioner) who must, three months after the end of each financial year, table a report in Parliament on the preparedness of the national DNA databank.

The DNA Data Bank Advisory Committee Regulations, SOR/2000-181 established the DNA Data Bank Advisory Committee (the Advisory Committee) to advise the Commissioner of the Royal Canadian Mounted Police (the Commissioner) on matters regarding the establishment of the databank, operation of the databank and DNA issues. The Advisory Committee consists of a Chairperson, a Vice-Chairperson, a representative of the Office of the Privacy Commissioner, and up to six other members which may include representatives of the police, legal, scientific and academic communities.

The purpose and use of the databank is to assist law enforcement agencies in crime detection and solving crimes and in this respect it compares the received DNA samples

and DNA profiles with the ones already stored in the databank. If there is a match this is communicated to the relevant law enforcement agency. DNA profiles obtained from DNA samples and DNA analysis are used for identifying suspects; exonerating suspects; linking crime scene to crime scene where there is no suspect; and establishing serial offences or serial offenders.

The databank has two indices, the Crime Scene Index (CSI) which, in terms of the *DNA Identification Act*, contains DNA profiles derived from bodily substances that are found at any place where a designated offence has been committed; on or within the body of the victim of a designated offence; on anything worn or carried by the victim at the time when a designated offence has been committed; or on or within the body of any person or thing or at any place associated with the commission of a designated offence.

The Convicted Offenders Index (COI) contains DNA profiles obtained from bodily samples that have been taken from convicted persons “under orders and authorizations”.

Only full DNA profiles are loaded onto the Databank. The only identifier of the DNA profile is a sample unique barcode (SUN). No other details, including the name or identity of the offender, the case reference or type of offence, are stored in the DNA Databank. This information is stored at the Fingerprint Database. Speculative searches against these Indexes in the DNA Databank are performed strictly for the purpose of crime investigations. Familial searches, or searches for missing persons are not allowed under this Act. Partial matches are not reportable.

Reported results showed that the DNA Databank has been very useful in linking unknown samples to known samples from convicted offenders. Statistics showed that the criminal careers of most convicts started with secondary offences, for mainly “petty crimes” which later escalated to more serious crimes or primary offences.

The following forensic hits were linked to known offenders as per statistics below:

- 45% petty crimes (mainly break and enter)
- 41% categorized crimes (primary offences)
- 14% other secondary offences, e.g. uttering threats

After verification of a hit, the details of the offender can be obtained from the Fingerprint Database through the Integrated Forensic Identification Service (IFIS).

The *DNA Identification Act* ensures the security of personal information in that it provides that the information contained in DNA profiles must be safeguarded in order to protect the privacy of individuals against the unauthorised use and communication thereof. Access to and the use of bodily samples stored in the databank must be safeguarded, and in this regard the *DNA Identification Act* provides that bodily samples must only be used for forensic DNA analysis and identification purposes; and that the use thereof for any other purpose is an indictable offence, liable to imprisonment for a term not exceeding two years; or on summary conviction to a fine of not more than \$2 000 or imprisonment of not more than six months or both.

## **5. UNITED KINGDOM STUDY TOUR**

The United Kingdom does not have a Bill of Rights. The national DNA database was expanded over the years and there is a wide scope in respect of the persons from whom DNA samples may be taken. The responsibility for the delivery of National DNA Database (NDNAD) services was transferred from the Home Office to the National Policing Improvement Agency (NPIA) in 2007. The agency's role is to run the database operations and maintain and ensure the integrity of the data. The approach to the implementation of DNA legislation in the United Kingdom has been geared more towards crime fighting and less on the protection of human rights, especially privacy rights. The judgement on 4 December 2008 of the European Court of Human Rights in *S. and Marper v The United Kingdom*<sup>4</sup> criticised the United Kingdom government's "indiscriminate retention" of DNA profiles on the national DNA database. Legislation is currently before Parliament to address this issue and to consider the removal of the DNA profiles of innocent persons from the national database.

### **5.1. GENERAL MEETINGS AND SITE VISITS**

#### **5.1.1. Meeting with Dr Zola Skweyiya (South African High Commissioner in London) and Colonel Ester Kgole from the Office of the South African High Commissioner in London, 1 July 2011**

Colonel Ester Kgole briefed the Delegation on its programme for the week and Dr Skweyiya focused on general issues of protocol. He also provided a brief overview of among other things, the United Kingdom Government, Parliament, the country's political history, the current political situation in the United Kingdom, and current events in the media.

#### **5.1.2 Meeting with Mark Bishop, Serious Organised Crime Agency, 8 July 2011**

The Strategic Defence and Security Review aims to equip the UK with modern defences, strong security and intelligence agencies as well as diplomats and development aid. The amount of aid to be spent in conflict countries will double to help tackle threats, including terrorism, organised crime, human trafficking and cybercrime. The National Crime Agency (NCA) is set to replace the Serious Organised Crime Agency (SOCA) and Child Exploitation and Protection Centre in 2013; and will also incorporate a border policing responsibility and house the National Cyber Crime Unit. A new organised crime strategy was expected to be published by the end of July 2011. SOCA intended to increase its staff numbers world-wide, especially in South Africa due to South Africa's regional influence in Africa. SOCA had strong relationships with the SAPS Crime Intelligence and the Directorate for Priority Crimes Investigation (the Hawks).

#### **5.1.3 Meeting with Detective-Sergeant Tom Dahri, International Liaison Unit (ILU), 8 July 2011**

The International Liaison Unit (ILU) has been established to develop international confidence in the ability of the United Kingdom police and government to deliver a safe, secure and resilient 2012 Olympic and Paralympic Games. The Unit will act as a conduit

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<sup>4</sup> 30562/04 [2008] ECHR 1518

for international sporting bodies and governments, with embassies at the heart of all engagement. Its biggest responsibility will be as a central point of contact for the 2012 security requirements, requests and concerns. It will provide access to all United Kingdom Olympic safety and security, in addition to being a resource for London-based police and security liaison officers. The unit will also co-ordinate the learning opportunities from future sporting events; and plan to share its experiences and learning with former and future host cities.

#### **5.1.4 Meeting with Chris Hall, Dipesh Dattani and Mr Marco Bardetti – Counter-terrorism Command, New Scotland Yard Metropolitan Police, 8 July 2011**

The meeting was a continuation of the Delegation's visit to New Scotland Yard which included a briefing and inspection of exhibits of the different types of bombs used in actual cases that the Counter-terrorism Command had worked on. This included liquid bombs which led to the introduction of security restrictions in respect of liquids allowed on board international flights. A video clip was shown about Operation Overt, during which the police intercepted communication and arrested members of a terrorist group who planned to blow up an airplane. The video simulated the impact and destruction that would have been caused had such an explosion occurred. The Counter-terrorism Command works closely with intelligence services and community organisations; and consists of various units, including the M15, M16 and the Northern Ireland Counter-terrorism Units.

#### **5.1.5. Visits to Scotland Yard, National Police Improvement agency Police College: Burnsville, the Forensic Services Section Forensic Laboratory: Birmingham, the National DNA Database, United Kingdom Parliament and New Hampshire Constabulary**

The Delegation received briefings at the various locations mentioned above from different role players in the Criminal Justice system. For purposes of the Report, the details of the presenters are listed below and a summary of the respective presentations that focused on DNA are provided below.

## **5.2. PRESENTATIONS ON DNA: KEY FINDINGS AND OBSERVATIONS**

### **5.2.1. List of presenters**

- Allan Matthews – Director, iFSS Specialist Forensic Integration
- Dr Helen Wallace - GeneWatch
- Kirsty Faulkner - National DNA Database, Birmingham
- Mick Carling - National DNA Database, Birmingham
- Adam Taylor – Forensic Science Services
- Michael Thompson - Head of Fingerprint Training, National Police Improvement Agency
- Dr Andrei Semikhodskii - Consultant, Trimega Laboratories Ltd and Medical Genomics Ltd
- Dr Thomas Haizel - Anglia DNA Services Ltd
- David Davis, Member of United Kingdom Parliament
- Chris Hughes - Chairperson NDNAD Ethics Group

### **5.2.2. Forensic DNA in the United Kingdom (UK): Allan Matthews (Director, iFSS Specialist Forensic Integration), 4 July 2011**

The United Kingdom has eight pieces of DNA enabling legislation. DNA was first used by the courts in 1987 to exonerate a man convicted of rape and murder. Since then legislation has developed to allow for, among other things, DNA samples to be collected in respect of all recordable offences; the establishment of a DNA database; retrospective sampling; the retention of DNA samples of acquitted persons; familial searches; the establishment of a Missing Persons Index; redefining buccal swabs as non-intimate samples; and allowing the police to use force to obtain a DNA sample. The national DNA database does not contain demographic data and searches are only permitted for criminal investigation purposes. Legislation is currently before Parliament to consider the removal of the DNA profiles of acquitted persons from the national DNA database in response to the European Court of Human Rights judgement in the *Marper* case.

### **5.2.3 DNA databases: technical, ethical and legal issues: Dr Helen Wallace, GeneWatch, 4 July 2011**

By March 2010 there were more than a million DNA profiles of innocent people, including children, on the UK's national DNA database. It also contained the profiles of many others arrested on insignificant charges but not convicted by a court. Retaining people's DNA profiles on a DNA database allows them to be treated as suspects for any future crimes. The number of DNA samples taken due to the expansion of the database has not led to an increase in the number of crimes solved. Better and faster crime scene analysis, plus thorough police investigation is much more effective and cost-effective than expansion. Errors can occur and the presence of DNA does not necessarily mean guilt. Getting legislation and processes right at the start is the key to maintaining trust. This includes technical, legal and ethical issues.

### **5.2.4 DNA services offered by Forensic Science Services (FSS): Adam Taylor, 4 July 2011**

The United Kingdom's Forensic Science Services (FSS) Laboratory is the largest of its kind in the world. It is 100% government-owned and has 9 facilities country-wide and a staff complement of approximately 1 200. The laboratory does forensic analysis of reference and crime scene samples for the police. The forensics analysis and DNA profiling systems are automated. Safety features built into the NDNAD allows the FSS to upload profiles onto the NDNAD but prevents it from searching the database. All accredited training courses and specialised coaching training are done in-house. Approximately £4.1 million per year is invested in research and development in order to enhance current forensic services. The United Kingdom government has, however, decided to close the FSS by March 2012 due to high maintenance and forensic services costs.

### **5.2.5 Introduction to United Kingdom's National DNA Database: Kirsty Faulkner, 5 July 2011**

The National DNA Database (NDNAD) of the National Police Improvement Agency (NPIA) is situated in Birmingham and is operated by the Delivery Unit which sets standards for the submission of records to the NDNAD. The IT system of the NDNAD is held at a different location. DNA is the most effective tool in the prevention and detection

of crime, but it must be used in conjunction with other supportive evidence. The NDNAD assists in evidential case-work and to establish genetic relationships, for example, paternity and maternity testing, gender determination, familial searches and identifying missing persons, dead bodies and victims of mass disasters. Database searches yield five matches every two days in respect of serious crimes. DNA profiles can be produced in eight hours due to accelerated DNA profiling technology and next-generation DNA chemistry.

#### **5.2.6 NDNAD Governance and Legislation: Mick Carling, 5 July 2011**

Data held on the NDNAD is the property of individual police forces (Data Controllers) and the Chairperson of the Strategy Board is the Data Controller in Common. The NPIA is the Data Processor. The NDNAD contains DNA profiles from England, Wales, Scotland and Northern Ireland. Under current legislation the DNA and fingerprints of persons arrested for recordable offences are retained indefinitely. The European Court of Human Rights ruled in the Marper case against the blanket, indiscriminate nature of DNA retention in the UK and Wales, not against the retention of DNA *per se*. The 2010 Protection of Freedoms Bill is in line with Scottish legislation and provides for the retention of DNA profiles of arrested persons for three years, extendable for two years if granted by the court, and a once-off speculative search. The profiles of convicted sex offenders and those convicted of serious or violent crimes can be retained indefinitely.

#### **5.2.7 Police use of forensic science as an investigative tool: Michael Thompson (Head of Fingerprint Training, National Police Improvement Agency), 6 July 2011**

All police officers are trained in DNA, fingerprints and forensics. Specialist police training is consistent and ongoing. DNA evidence is only accepted by the courts if the National Occupational Standards and ISO procedural standards have been complied with. DNA must be used with other means of identification, for example fingerprints. Basic policing and investigative skills are vital and the continuity and preservation of evidence along the chain of custody is very important to avoid evidence being challenged in court. The police officer who arrives first at a crime scene must be forensically aware and be able to preserve the crime scene until the Crime Scene Investigator arrives. Forensic evidence is kept at a police force's forensic centre and not at the police station itself.

#### **5.2.8 DNA evidence in the fight for justice: Dr Andrei Semikhodskii (Consultant, Trimega Laboratories Ltd and Medical Genomics Ltd), 6 July 2011**

The presentation outlined the different types of DNA evidence, its advantages and the application of DNA evidence in criminal law (for identification purposes) and in civil law (e.g. immigration and paternity testing). The interpretation of the DNA evidence presented in court is mostly challenged and not the DNA itself. DNA evidence has shortcomings. For example in multiple rapes, DNA evidence is not reliable if there were more than two rapists. DNA evidence also has a high sensitivity to laboratory contamination and errors. Despite the FSS's highly sophisticated system it also reports errors and it is the interpretation of especially logical errors in court that could, if done in a logically incorrect manner, influence the court's decision as judges are not scientists and may not have been trained to spot such errors.

### **5.2.9 Private DNA laboratories and submission of samples to the National DNA database: Dr Thomas Haizel (Anglia DNA Services Ltd), 7 July 2011**

The presentation briefly set out relevant scientific facts concerning DNA in terms of where DNA is located in the human cell; the composition of human DNA; DNA analysis; genetic coding and DNA makers; as well as the process that is followed after samples or police exhibits are received by laboratories; the analysis and reporting of test results; and submission of profiles to the NDNAD. New methods of analysing data and technological advances over the years have cut the costs of DNA analysis dramatically. Privatisation is expected to drive costs down even further and reduce processing times due to more competition. However, the high costs driver for the police may not be forensic analysis costs itself, but related costs due to the use of multiple systems, including the costs of couriering DNA samples to and from laboratories.

### **5.2.10 Debate on DNA - David Davis, MP (United Kingdom Parliament), 7 July 2011**

Previously the police had a wide scope of legislative powers to retain DNA indefinitely, irrespective of the type of crime committed. More than one million profiles on the NDNAD belonged to persons who had been exonerated, including children. The main weakness in the approach to DNA lay in the incompetence of the police in that DNA was taken so insecurely that it could not be used in court. Although more people were arrested the conviction rate did not increase. The police infringed people's freedoms and liberties and targeted young black males. DNA had an effect of stigmatising people whose DNA had been taken before as they were arrested more often. DNA is not a solution to crime in itself and was less effective in helping to solve violent and sexual crimes. Parliament was not opposed to the taking of DNA but rather to the indiscriminate retention of DNA for all offences and in respect of innocent persons.

### **5.2.11 The role of the NDNAD Ethics Group: Chris Hughes, Chairperson NDNAD Ethics Group, 8 July 2011**

The NDNAD Ethics Group is an independent non-statutory body that advises the government on ethical issues concerning the NDNAD. These include the fact that sometimes the police take DNA samples without explaining properly what it will be used for; and what processes will be followed regarding the results and the implications thereof. DNA is not only taken from adults but also from children who are not able to give their informed consent. There is also the question of proportionality in that some feel that requiring DNA to populate the national DNA database is so intrusive that either it must contain the entire population's DNA profiles or such a database should not exist at all. Although the value of the NDNAD has been recognised, clarity is needed regarding whose and how much information should be on the database and how long it will be retained. It was felt that indefinite retention is disproportionate to crime and that there was a danger of stigmatisation; and racial and ethnic targeting.

### **5.3. LEGISLATIVE FRAMEWORK**

The legislative framework governing the DNA forensics in the United Kingdom developed as follows:

#### **5.3.1 Police and Criminal Evidence Act of 1984**

The Act authorised the taking of DNA samples from a person suspected of a recordable offence. It made a distinction between intimate and non-intimate samples. An intimate sample, other than urine and saliva, could only be taken by a medical doctor.

#### **5.3.2 Criminal Justice and Public Order Act of 1994**

The Act changed the Police and Criminal Evidence Act of 1984 to provide that the police could take a buccal swab (or non-intimate sample). The use of limited force to pull hair was authorised (with the permission of the Chief Constable) where a buccal swab was refused; and the sample could only be used for purposes of crime investigation. This Act also aligned the fingerprint and DNA legislation. There was a need to ensure the integrity of the system of collecting DNA to safeguard reliability of results. In 1995 the National DNA Database was fully operative.

#### **5.3.3 Criminal Evidence Act (Amendment) of 1997**

The Criminal Evidence (Amendment) Act was introduced to address certain shortcomings in relation to DNA governance and to expand the number of profiles on the National DNA Database which at that time contained about 80 000 DNA profiles of convicted and unconvicted persons. The Act authorised retrospective taking of samples from convicted persons, and in particular provided for (a) an extension of the police's power to take non-intimate body samples without consent from (i) persons imprisoned or detained by virtue of pre-existing conviction for serious offences like a sexual offences and murder, (ii) persons detained following acquittal on grounds of insanity or finding of unfitness to plead, (b) taking of samples from detained persons at the place of detention and (c) the time allowed for requiring a person to attend a police station to have a DNA sample taken.

#### **5.3.4 1998 – DNA expansion programme**

The DNA expansion programme allowed for the taking of a DNA sample from all known offenders, thereby increasing offender profiles on the National DNA Database. It also enabled the collection of more DNA material left by offenders at crime scenes, particularly volume crime scenes (such as burglary and vehicle crime).

#### **5.3.5 2000 – Police Staff DNA Database**

Police were required to volunteer and give a DNA sample for elimination purposes, i.e. to have their samples matches eliminated as possible suspects.

#### **5.3.6 Criminal Justice and Police Act of 2001**

The Act provided for the retention of DNA profiles of persons arrested for any crime, even if acquitted. The retention period is indefinite, but an acquitted person can make an

application for the profile to be removed from the National DNA Database (NDNAD). According to the NDNAD Annual Report for 2005-2006 and the DNA Expansion Programme in 2005, more than 200 300 profiles were additionally retained in the NDNAD.

### **5.3.7 2002 – Relative or familial searches**

The United Kingdom had no legislation governing familial searches. Such searches were dealt with as a matter of police policy and were conducted under the authority of the Association of the Chiefs of Police.

### **5.3.8 Criminal Justice Act of 2003**

This Act provided that any person arrested could have their DNA sample taken along with their fingerprints. As a result in 2004 an extra 139 000 DNA profiles were added to the NDNAD. According to the NDNAD Annual Report for 2005- 2006 there were 139 000 extra profiles in the NDNAD. There were 3 000 crime scene matches of which 37 were in respect of murders and 90 in respect of rapes.

### **5.3.9 Serious Organised Crime and Police Act of 2005**

The Serious Organised Crime and Police Act permitted the use of the NDNAD to identify persons who were victims of natural disasters.

### **5.3.10 Crime and Security Act of 2010**

This Act emanated from *the S. and Marper v The United Kingdom* judgment. Marper challenged the United Kingdom DNA legislation on indefinite retention on the basis that he was a juvenile when the DNA sample was taken and the indefinite retention of his DNA profile was in breach of his human rights. The European Union Court of Human Rights held that the United Kingdom breached Article 8 of the European Convention on Human Rights and that it needed to reconsider its DNA legislation especially with regard to retention periods. The Crime and Security Act proposed to limit the retention of DNA profiles for juveniles on the NDNAD to six years. However, the Act was never implemented and is meant to be replaced by the Protection of Freedoms Bill.

### **5.3.11 Protection of Freedoms Bill -2011**

The Protection of Freedoms Bill which is currently before the United Kingdom Parliament was introduced in 2010 in order to give effect to the *Marper* judgment. The European Court of Human Rights ruled in the Marper case against the blanket, indiscriminate nature of DNA retention in the UK and Wales, not against the retention of DNA *per se*. The United Kingdom Parliament was therefore not against the taking of DNA samples, but have identified the wide powers given to the police and the insecure manner in which DNA was taken to the extent that it could not be used in court, as some of the reasons for introducing the Protection of Freedoms Bill which had been aligned with Scottish legislation. The Protection of Freedoms Bill provides for the destruction of samples within six months, and the retention of DNA profiles of arrested persons for three years, extendable for two years if granted by the court, and a once-off speculative search.

## **5.4. IMPLEMENTATION OF LEGISLATION**

### **5.4.1. Privatisation of forensic services**

The Forensic Science Services (FSS) processes at least 60% of all forensic DNA case work. It has nine laboratories across the United Kingdom, with approximately 1 200 trained personnel. Up until 1993 the FSS experienced major backlogs. After the Government embarked on the DNA expansion programme the market was opened for privatisation.

In total there are currently 19 laboratories (private and state laboratories) in the United Kingdom which process forensic DNA samples, the majority of which uses SGM+ as the DNA Typing Kit of choice.

It was announced during the Study Tour that the FSS will be disbanded in 2012. The costs of running the FSS facilities was cited as the main reason for its closure, in that the government could no longer afford the very high maintenance costs (given the overall budget cuts that were taking place in the United Kingdom. At the time the estimated cost of processing a single DNA sample was about £40.

It is noteworthy that the South African FSL benchmarked its process to a great extent on the United Kingdom's FSS DNA process models, as the FSS ran a successful automated DNA process. Although it took 10 years to fully automate the FSS's systems, the return on this investment can be seen in the significantly improved turn-around times for DNA sample processing at its laboratories. The turnaround times were between 12 to 24 hours at the time of announcement of the closure of the FSS. The turnaround times for the crime scene samples was at seven days, and up to 21 working days for low copy numbers of DNA.

Buccal swabs and hair samples are taken by police officers from any person suspected to have committed a crime. In cases where a suspect refuses to give a sample, the police officer is authorised to use force if necessary to obtain a sample from that person. Two samples are taken, one is used in the processing and the other is retained. Samples are taken to the state and/or private laboratories by courier services. This service is outsourced to a private company because of its<sup>5</sup> efficiency in transportation, handling and storing forensic evidence material.

### **5.4.2. Governance**

The National DNA Database (NDNAD) is owned by the Association of Chiefs of Police (ACPO). The data held in the NDNAD is the property of the individual police forces (known as data controllers). The Chairperson of the Strategy Board is the Data Controller in Common. The NPIA is termed the Data Processor. It manages the Database and storage of results. The NPIA in turn reports to the Home Office.

The NPIA manages the National DNA Database and is responsible for overseeing the National DNA Database service, ensuring that it is operated in line with agreed standards. The NPIA is also responsible for accrediting all the scientific laboratories that

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<sup>5</sup> Prisoners are also transported by the same company to courts or to correctional centres.

analyse DNA samples; and oversees the contract for the operation and maintenance of the NDNAD. It accounts to the Strategy Board on DNA, which is responsible for, amongst other things, the setting up of quality standards for the management of the Database.

The NDNAD holds profiles for England, Wales, Scotland and Northern Ireland. Laboratories do not have access to the Database but they are profile generators and have a link that tracks progress.

The meeting with the Forensic Science Services (FSS) highlighted the importance of planning in respect of process implementation when introducing DNA legislation. The collection and storage of samples, as well as security mechanisms must be taken into account to ensure proper implementation of the legislation. The planning phase must include a consideration of important factors like processing facilities, cost implications and human resources.

Quality assurance and the accreditation of laboratories are critical to ensure that sufficient measures are in place to prevent the mix-up and contamination of DNA samples. The Independence of DNA forensic laboratories from the police and prosecutors is critical to maintain faith in the criminal justice system. The fact that the FSS was bankrupt and faced closure means that financial stability (taking into account the size of the market among other things) must also be considered to ensure proper implementation of such legislation.

The following are some of the key database governance challenges:

- Hacking of the DNA Database: is a possibility as a result of a number of IT system's interfaces that are built for the integration of various systems from different laboratories for the DNA Profile submission.
- Reflection of police arrests behavior: Demographics on the database do not match those of the country – ethnic dominance and bias resulting in damage to race relations.
- Blanket and indiscriminate nature of the powers to retain samples and/or DNA profiles: DNA Profiles are not expunged from the national DNA database-although the samples get destructed. Therefore they remain “suspects for future crimes.”
- Lack of Independence of Database Management: 60% of members are from the policing environment.
- Profiteering: The exploitation, abuse, taking advantage of or use of the information on the database for own interests by database custodians and parties who have access to the database.
- Bio-surveillance: The tracking of persons and their families through partial matches or familial matches, including for reasons of establishing paternity may lead to privacy violations.

According to the NPIA 80% of the matches in the national DNA database reveal a different crime than that for which the suspect or convict was originally arrested. About 50% of detections led to convictions; and each crime detected led to 0.8% detection of other crimes.

However, the NDNAD's success in terms of detection rate is ascribed to, amongst other things, the £200 million DNA Expansion Project that was rolled out over a five-year period for the setting up of the database. During that period, most samples were taken from burglary cases, theft cases and other "petty" crimes. Moreover, according to GeneWatch and the United Kingdom Parliament the conviction rate has gone down; and the use of DNA was found to be less effective in serious crimes for which it was originally intended.

#### **5.4.3. Intimate and non-intimate samples**

Legislation in the United Kingdom differentiates between "intimate samples" and "non-intimate samples". A sample of blood, semen or any other tissue fluid, urine or pubic hair, a dental impression, a swab from a person's genitals or buccal swab are regarded as intimate samples. A non-intimate sample is defined as a sample of hair other than pubic hair, a sample taken from a nail or from under the nail, a swab taken from any part of a person's body including the mouth but not any other body orifice (therefore a mouth swab is a non-intimate sample); saliva; a footprint or a similar impression of any part of a person's body other than a part of his hand (which is included within taking fingerprints) or a dental impression (which is an intimate sample).

#### **5.4.4. Types of searches**

Comparative searches, speculative searches and familial searches are allowed in the provisions for the DNA database. A once-off, single speculative search is performed on the DNA profiles of all arrestees before the DNA sample is destroyed.

#### **5.4.5. Information Commissioner**

In the United Kingdom the NDNAD is governed by a number of different laws. Any person arrested for a recordable offence has his or her sample and fingerprints taken and retained indefinitely. The person can apply to the Information Commissioner to have the profiles removed. The Information Commissioner is an independent authority that was set up to uphold information rights in the public interest, promoting openness by public bodies and data privacy for individuals.

Time spans in which samples could be retained in the DNA database are defined within the various laws that cater for the DNA Database.

### **5.5 ISSUES AND CHALLENGES REGARDING THE USE OF DNA**

#### **5.5.1. Wide collection practices**

Speculative searches against past crime scene DNA profiles stored on a database could lead to further matches. Retaining an individual's DNA profile on a DNA database allows

that person to be treated as a suspect for any future crime, as new crime scene DNA profiles are loaded.

In England and Wales, DNA has been collected routinely on arrest (from everyone aged 10 or above) for all recordable offences since April 2004. This, however, did not help to solve more crimes. An attempt to take samples for all offences was discontinued.

#### **5.5.2. Consent**

The police are allowed to use 'reasonable force' to take DNA. In many other countries DNA can be taken without consent only if a court orders it.

#### **5.5.3. Volunteer index**

DNA can be taken from volunteers for elimination purposes. Retaining volunteers' DNA profiles is being discontinued in England and Wales since it did not assist to solve more crimes.

#### **5.5.4. Comprehensive approach**

With regard to crime scene investigations it is important to note that DNA in itself will not solve crime and must be used in conjunction with other evidence. It is therefore critical to maintain a clear, uncontaminated chain of evidence (thorough, fast, documented and trusted).

Less than 1% of crimes are solved using DNA. Success is driven by the number of crime scene DNA profiles loaded onto the national DNA database. In 2008/09, a total of 0.37% of crimes was detected using DNA, mostly in respect of volume crimes such as burglaries and car thefts. GeneWatch estimated that only about 11% of these involved 'cold hits' with stored individuals' DNA profiles. Most of the detections involved matches with DNA profiles from repeat offenders; 89% involved known suspects or matches with stored crime scene DNA profiles. In respect of serious crimes only 0.98% of the total DNA detections were in respect of rape and 0.4% in respect of homicide.

A comprehensive database for unsolved crime scenes would assist in the detection of crimes (to be used when persons are arrested). If a person is arrested it is agreed that DNA may be collected, but when not proceeding with a case against that person then the DNA should not be retained.

#### **5.5.5. Planning and implementation**

Over the years the development of DNA legislation in the United Kingdom has been reactive rather than planned. This is partly due to law and policy makers not having foreseen technological advances in the area of DNA. Prior scoping or planning, as well as thorough costing of the implementation of any proposed DNA legislation in South Africa is thus a necessity.

It was realised that technology, people or new laboratories alone were not the answer. Planning and an integrated strategy that combines elements of all these (technology,

people and laboratories) are required. It is also important to have the buy-in of top level ownership of the police, prosecutors, judiciary and other role players.

The NPIA highlighted the fact that DNA legislation has to be fair, transparent, concise, fit for purpose and with a clear role for the forensic practitioner. It is of utmost importance that the courts are forensically aware and that there is constant communication with the judiciary about developments in respect of DNA as they must interpret and apply the law on DNA.

The importance of DNA and its scientific and evidential value start at the crime scene which is an important factor that should impact on all police work. South Africa would do well to emulate the United Kingdom and Canada where forensics training is embedded as a core theme of police training. This includes training on the evidential value of DNA evidence, protecting the crime scene from being contaminated and the preservation of evidence. Police training in general is consistent and continuous throughout a police officer's career and provision is also made for specialist training after the successful completion of prescribed courses and with relevant experience. The provision of forensic services should be viewed as a long-term investment which will require the maintenance of certain standards and protocols.

The following are selected issues raised by GeneWatch relating to the implementation of DNA legislation:

- Getting legislation and processes right at the start is key to maintaining trust. This includes technical, legal and ethical issues.
- Bigger is not better. Benefits of an expanded database can tail off rapidly and problems increase as DNA databases expand. Better and faster crime scene analysis in addition to the police following up on leads to identify known suspects (and taking DNA and fingerprints from them when relevant), is much more effective and cost-effective than "widening the net".

#### **5.5.6. Human rights issues pertaining to the use of DNA evidence**

- The growth of a 'Big Brother' state and potential misuse of data by government and the tracking of citizens and their families through bio-surveillance, including for reasons of establishing paternity, is a concern.
- There are fears of the police categorising individuals as 'risky' based on genetics; and discriminating against persons based on ethnic appearances.
- Unfairness in some persons being treated like criminals;
- There is a possibility that persons can be falsely accused of having committed a crime;
- The implications of an individual having a 'criminal' record for the rest of his or her life can have a negative impact on, among other things, applications for employment and visas; and can influence a person's treatment by the police;
- The personal nature of DNA and amount of information that can be found in DNA which can tell the state not only about a person, but also about his or her relatives, siblings and offspring;
- Potential loss of data or misuse of data (including by corrupt police officers, commercial providers or infiltrators).

The following are selected issues raised by private laboratory: Anglia DNA Forensic Services Limited which still needs to be addressed in United Kingdom legislation:

- Reasonable criteria for collecting samples from individuals (i.e. only charged individuals);
- Only take samples from individuals charged for serious offences;
- Establish a strong accountable governing body; and
- Removal policy in respect of (i) samples that are mistakenly loaded on the National DNA database; and (ii) a time limit on how long the information is kept on the National DNA database.

#### **5.5.7. Privatisation**

- The laboratory set-up and compliance with statutory and international standards are very important. In the United Kingdom the private forensic laboratories are accredited by the UK Accreditation Service (UKAS) to ISO 17025 standard to carry out forensic work. The UKAS carries out yearly inspections of private laboratories. They are also required to pass two proficiency tests organised by the NDNAD and pay subscriptions to load information onto the NDNAD.

#### **5.5.8. Ethical issues**

- In view of the fact that it is intended that DNA would be used at trial it is important that the science and technology upon which it is based must be robust, evidence analysis must be accurate and the probabilities sound. This is fundamental to the ethics of the use of DNA.
- It has to be explained to the person from whom a DNA sample is taken what it will be used for and where it will be stored.
- With regard to proportionality in respect of the collection of DNA, it was felt that because this is such an intrusion, a DNA sample and/or profile should either not be kept, or the DNA of the entire population should be collected and their profiles stored on the NDNAD. There is currently no country in the world that has included the DNA profiles of its entire population in a national DNA database.
- It must still be determined how to balance the need for a credible robust database with acceptable retention periods.
- There is also the danger of stigmatisation relating to how certain people view the presence of their DNA profiles on the database as diminishing their citizenship. The NDNAD have also been accused of having a disproportionate representation of the DNA profiles of young black persons. The NDNAD pointed out that this reflects police action which further points to the real danger of police targeting and arresting young black males.

Some of the other ethical issues raised related to:

- inadequate capacity in the private sector to take over the volume of work currently performed by the FSS;
- destruction of samples kept by the FSS;

- loss of capacity with regard to research and development;
- slowing down of forensic processes;
- Although DNA is very useful in solving crimes, the protection and security of information on the National DNA Database is crucial in order to secure the independence and integrity of the system. The challenge in the United Kingdom “remains to safeguard privacy and human rights without compromising the power of this technology”.<sup>6</sup>

## 6. COMMITTEE RECOMMENDATIONS RELEVANT TO PROCESSING DNA LEGISLATION IN SOUTH AFRICA

It should be noted that the Report of the Portfolio Committee on Police’s Study Tour to Canada and the United Kingdom; and the recommendations contained in the Report, will serve only as a guide and will not be binding on the Committee when it considers DNA legislation.

### 6.1 Transitional arrangements regarding current DNA practices

South Africa, unlike Canada and the United Kingdom, has no legislative system regulating the collection, storage and keeping of DNA. It will thus be important to ensure the continuity and uniformity in respect of current DNA practices, usage and storage when the envisaged DNA legislation comes into operation, for example by providing for transitional arrangements in the legislation.

### 6.2 Protection and limitation of Constitutional rights

The legislative process must take into account that South Africa has a Bill of Rights that is entrenched in the Constitution, in terms of which fundamental human rights are protected and guaranteed.

Any proposed legislation that will govern the collection, storage and use of DNA of a person will need to fall within the parameters of the Constitution of the Republic of South Africa, 1996; and any information stored in, and the administration of, a proposed National DNA Database must be safeguarded against any unauthorised access and abuse thereof.

In this regard we refer to the following Constitutional rights:

- **The right to human dignity (Section 10):** *“Everyone has inherent dignity and the right to have their dignity respected and protected.”*
- **The right to privacy (Section 14):** *“Everyone has the right to privacy, which includes the right not to have—*
  - (a) their person or home searched;*
  - (b) their property searched;*
  - (c) their possessions seized; or*
  - (d) the privacy of their communications infringed.”*

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<sup>6</sup> Dr. Thomas Haizel, Anglia DNA Forensic Services Limited

- **The right to equality (Section 9):**  
*“(1) Everyone is equal before the law and has the right to equal protection and benefit of the law.  
(2) Equality includes the full and equal enjoyment of all rights and freedoms. To promote the achievement of equality, legislative and other measures designed to protect or advance persons, or categories of persons, disadvantaged by unfair discrimination may be taken.  
(3) The state may not unfairly discriminate directly or indirectly against anyone on one or more grounds, including race, gender, sex, pregnancy, marital status, ethnic or social origin, colour, sexual orientation, age, disability, religion, conscience, belief, culture, language and birth.  
(4) No person may unfairly discriminate directly or indirectly against anyone on one or more grounds in terms of subsection (3). National legislation must be enacted to prevent or prohibit unfair discrimination.  
(5) Discrimination on one or more of the grounds listed in subsection (3) is unfair unless it is established that the discrimination is fair.”*
  
- **The right to bodily and psychological integrity (Section 12(2)(b))**  
*“Everyone has the right to bodily and psychological integrity, which includes the right...of security in and control over their body.”*
  
- **The rights of arrested, detained and accused persons (Section 35)**  
*These rights include the presumption of innocence and not to be compelled to give self-incriminating evidence and the right to a fair trial.*
  
- **Limitation of rights (Section 36)**  
*“The rights in the Bill of Rights may be limited only in terms of law of general application to the extent that the limitation is reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom, taking into account all relevant factors, including :*
  - (a) the nature of the right;*
  - (b) the importance of the purpose of the limitation;*
  - (c) the nature and extent of the limitation;*
  - (d) the relation between the limitation and its purpose; and*
  - (e) less restrictive means to achieve the purpose.”*
  
- **The rights of children (Section 28)**  
Children’s rights are integral in addressing adequate protection for children whose DNA are taken for criminal investigative and retention purposes.

**The retention of DNA data** of (a) persons who were suspected of an offence, but subsequently cleared; (b) persons who have been charged but not prosecuted; and (c) accused persons who were acquitted subsequent to a trial must also comply with the protection afforded in the Bill of Rights, especially in relation to the right to privacy, right to human dignity and the right to equality.

Any limitation of the constitutional rights of individuals and minors mentioned above must also comply with the requirements contemplated in section 36 of the Constitution.

### **6.3 The following areas should be considered in the processing of DNA legislation:**

- South Africa needs to decide what the country wants to achieve through DNA legislation.
- Consideration should be given to what the country can afford in terms of the costs in respect of the implementation of legislation, taking into account the long-term sustainability of laboratories and whether they should be state-owned, private or a mixture of both; high maintenance costs of fully automated systems versus semi-automated systems and the speed and efficiency of such systems; the costs of processing individual DNA samples, and the costs of DNA kits, as well as additional cost drivers like courier services to courier DNA samples between the police station and forensic laboratories.
- Consider the IT costs implications and solutions associated with a national DNA database: the Canadians use Codis, an open-sourced software developed by the United States Federal Bureau of Investigation (FBI) which was adapted specifically for police enforcement purposes. The associated cost implications of this open-sourced computer system are therefore minimal and should be investigated as an option for South Africa.
- Consider the requirements to ensure the secure storage of DNA samples and DNA profiles.
- Consider the effective administration and control of a national DNA databank.
- Consider the time-periods for the retention and destruction of DNA samples and profiles.
- Consider the number of Indices a national DNA database should have: All logistics with regard to the management of the DNA Database appears to be better co-ordinated in Canada which has only two DNA Database indices, namely a Crime Scene Index (CSI) and the Convicted Offender Index (COI). All crime scenes stains/evidential material are processed, and the DNA profile subsequently generated is loaded on the CSI. South Africa should ideally have more than just these Indices. Canada does not have a Reference Index for Investigators and has recommended that South Africa should ideally include a Reference Index.
- Consider the number and categories of profiles that will be kept in the national DNA database. In order to improve the Criminal Justice System and to have an effective database it will be necessary to have enough profiles on the CSI for the purpose of performing comparative searches on the database.
- Consider the categories of crimes in respect of which DNA samples and profiles will be required and the possible expansion of a national DNA database to include more categories of crimes / indexes in future: Any future expansion will have costs implications as was experienced in the United Kingdom and Canada. Consideration should therefore be given in the South African legislation to create all needed Indices

like a Volunteer Index, Reference Index or Investigator Index, at the start so that database expansion will not be needed at a later stage.

- Give consideration regarding who should be authorised to take DNA samples: In Canada and the United Kingdom the DNA samples of convicted offenders are taken by trained police officers who are dedicated and authorised for this purpose. In Canada samples are taken at courts in designated rooms by a police officer; and also at police stations on the authority of a DNA warrant issued by the court.
- Give consideration regarding from whom DNA samples can be taken: Canadian police are not faced with the challenges of obtaining DNA samples from all arrestees or suspects, but have to consider the nature and type of designated charges in the Canadian Criminal Code. Consider including a similar list in proposed South African DNA legislation, but with less categories of crimes than is the case in Canada. The forensic DNA profiles of persons charged and convicted can be obtained by using the reference DNA lane set-up with, as a minimum, a person's buccal swab on FTA taken by police officers and performing direct PCR on the FTA, etcetera.
- Consider the real-time taking of DNA samples: Taking DNA samples from convicts sentenced as at the implementation date of DNA legislation is recommended as the retroactive / retrospective taking of samples may pose major challenges for the FSL given the current capacity.
- Give consideration to the position of minors in respect of the taking of DNA samples by aligning DNA legislation with the Child Justice Act.
- Consider the training and capacitating needs of police and laboratory officials.
- Give consideration to subjecting DNA legislation to Parliamentary review after a specified period to allow for the revisiting of DNA categories; and amendments in order to address gaps, needs or technological or scientific developments in respect of DNA.
- Give consideration to establishing a strong oversight body to ensure the integrity of the national DNA database management similar to the National DNA Database Advisory Committee to advise the Government or DNA database custodian on, among other things, matters regarding the establishment and governance of the national DNA database.
- Give consideration to establishing a National DNA Database Ethics Committee to oversee ethical issues in respect of the governance of the national database.
- Give consideration to establishing an independent oversight body such as the Privacy Commissioner to oversee the implementation of privacy legislation in respect of the protection of privacy rights and other Constitutional rights; as well as access to the national DNA database and the disclosure of information contained therein.
- Give consideration to specify in the legislation that oversight bodies must report to Parliament.

- Give consideration to international co-operation with policing agencies such as Interpol.
- Give consideration to the regulation and accreditation of private laboratories.
- Give consideration to requiring that laboratory personnel must undergo security clearance.
- Consider privacy issues associated with DNA legislation. In Canada the DNA Identification Act is specific on how to address pertinent issues such as the retention of samples and the expungement of DNA profiles. Laboratory resources, designs of facilities and accommodation match the intended purpose of the Act. As a result Canada appears to be deriving more value from DNA and a national DNA database as investigative tools.
- Consider balancing the rights of the individual versus the safety of our communities.
- Consider the phased-in implementation of DNA legislation: Phase one of the legislation could focus on all contact crimes and property crimes with a possible sentence of five years and more. Phase two of the legislation (possibly to be considered after three years) could focus on all offences with a possible sentence of two years or more. Given the challenges listed in the SAPS forensic laboratories, the phased-in approach will allow for better implementation of the legislation as this will allow the SAPS the time to implement the strategies in place to circumvent all identified implementation challenges.
- Consider the availability of service providers that are able to repair laboratory equipment locally.
- Give consideration to the roles of other departments like the Departments of Health, Justice and Constitutional Development and Correctional Services which should ideally be clearly defined in the legislation.

## **7. CONCLUSION**

While the evidential value of DNA cannot be denied, it is important for the public to have realistic expectations about the capabilities of DNA and the implementation of DNA legislation once passed.

The information received during the Study Tour showed that DNA was less effective in helping to solve serious crimes like rape and murder, as opposed to property crimes like breaking and entry. Whilst acknowledging the role of DNA in the fight against crime, it must however be pointed out that DNA evidence in itself cannot solve crimes, but can merely assist the police in the investigation of crime and must be used in conjunction with other evidence. The comparison of fingerprints obtained from the crime scene is equally important and should be equally emphasised. Parliament has passed legislation on fingerprints but this legislation has not yet started to yield results. This emphasises the importance of thorough police investigation skills, among other things, to follow up on leads and other corroborative evidence.

The safeguarding of DNA samples against contamination (from the time of taking right through the chain of custody) is important to ensure the quality and integrity of samples; and to ensure that DNA evidence will be accepted by the courts. Although no conclusive statistics were available, it was found in the United Kingdom that convicted persons whose DNA profiles were contained on the NDNAD were not deterred from re-offending, which leads to the conclusion that a national offender index or database is not a deterrent to committing crimes or re-offending.

It is also important to note that the countries visited during the Study Tour are both first-world countries, with bigger national budgets and better police facilities compared to South Africa which also has a much higher crime rate than these countries. It will therefore take some time before South Africa will be able to see an improved criminal justice system that is on par with these countries as far as the introduction of DNA legislation is concerned.

Report to be considered.

## **8. SELECTED ACRONYMS AND GLOSSARY OF TERMS**

### **A**

ACPO — Association of Chiefs of Police

### **C**

CODIS — Combined DNA Index System. Computer system that stores DNA profiles.

COI — Convicted Offender Index

CSI — Crime Scene Index

### **D**

DNA — Deoxyribonucleic acid. A nucleic acid that contains the genetic instructions used in the development and functioning of living organisms.

DNA profile — An encrypted set of numbers that reflects a person's genetic makeup and can be used as a person's identifier.

DNA sample — A sample of a person's DNA can be obtained from a buccal swab from the inside of the mouth, hair or blood.

### **F**

FSL — Forensic Science Laboratory (SA)

FSS — Forensic Science Services (UK)

FTA — Fast technology for analysis of nucleic acids. Protects samples from degradation.

### **H**

Hash and child-loadable hash — 'Hash' is another word for encrypted code. Encryption is the coding or scrambling of information so that it can only be decoded and read by someone who has the correct decoding key. Hash containing child pornographic material is referred to as "child-loadable hash".

### **I**

IFIS — Integrated Forensic Identification Service

### **L**

*Loci* — A specific location of a gene on a chromosome

### **P**

PCR — Polymerase Chain Reaction. A scientific technique in molecular science to amplify a single or a few copies of DNA across several order of magnitude generating multiple copies of a DNA sequence.

### **R**

RCMP — Royal Canadian Mounted Police

### **S**

SAPS — South African Police Service

STR — Short Tandem Repeat. Occurs when a pattern of two or more nucleotides are repeated and the repeated sequences are directly adjacent to each other.